

[METHOD FOR IMPROVING RELIABILITY OF STI]

Abstract of Disclosure

An improved STI method having an ISSG film as an interface reinforcement layer is disclosed. The present invention includes the following steps of forming a trench-patterned mask layer on the top surface of a substrate exposing an unmasked trench region of the substrate. The mask layer is a pad oxide layer and a silicon nitride layer formed on the pad oxide layer. The unmasked region of the substrate is etched to form a trench on the substrate and the silicon nitride layer and the substrate of the trench are simultaneously oxidized to form an ISSG in-situ steam growth (ISSG) film. A dielectric layer is deposited that fills the trench and covers the mask layer. The dielectric layer is planarized to expose the silicon nitride layer, then the silicon nitride is stripped.

Figures

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